

Application No.: 09/864,055

Docket No.: JIAN0094-CIP-R

In The Claims:

Claim 1. (currently amended) A bonding pad structure, comprising:

a copper interconnect structure layer having multi-layer interlevel dielectric layers and copper interconnects in the multi-layer interlevel dielectric layers;

a passivation layer over the copper interconnect structure layer having a pad window to expose a portion of the copper interconnects layer;

a barrier layer conformal to a profile of the pad window; and

an aluminum pad located in the pad window, wherein the aluminum pad is exposed by the passivation layer and is only deposited inside the pad window.

Claim 2. (original) The bonding pad structure of claim 1, wherein the barrier layer is selected from the group consisting of aluminum (Al), tantalum (Ta), tantalum nitride (TaN), titanium nitride (TiN), and tungsten nitride (WN), mixtures thereof, combinations thereof and alloys thereof.

Claim 3. (original) The bonding pad structure of claim 1, wherein the aluminum pad is an aluminum, aluminum alloy or aluminum dominated layer.

Claim 4. (currently amended) A bonding pad structure, comprising:

a copper interconnect structure layer having multi-layer interlevel dielectric layers and copper interconnects in the multi-layer interlevel dielectric layers;

a passivation layer over the copper interconnect structure layer having a pad window to expose a portion of the copper interconnects layer;

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a barrier layer conformal to a profile of the pad window and extended along a portion of the surface of the passivation layer ~~from~~ surrounded the pad window; and

an aluminum pad located over the barrier layer, wherein the aluminum pad is disposed only inside the pad window and over a portion of the surface of the passivation layer surrounding the pad window.

Claim 5. (original). The bonding pad structure of claim 4, wherein the barrier layer is selected from the group consisting of aluminum (Al), tantalum (Ta), tantalum nitride (TaN), titanium nitride (TiN), and tungsten nitride (WN), mixtures thereof, combinations thereof and alloys thereof.

Claim 6. (original). The bonding pad structure of claim 4, wherein the aluminum pad is an aluminum, aluminum alloy or aluminum dominated layer.

Claims 7-24. (canceled)

Claim 25. (previously presented) The bonding pad structure of claim 1, wherein the aluminum pad located in the pad window is connected with a bonding wire.

Claim 26. (previously presented) The bonding pad structure of claim 1, wherein the aluminum pad located in the pad window is connected with solar ball.

Claim 27. (new) The bonding pad structure of claim 4, wherein the aluminum pad located in the pad window is connected with a bonding wire.

Claim 28. (new) The bonding pad structure of claim 4, wherein the aluminum pad located in the pad window is connected with solar ball.